# Does Intensive Insulin Therapy Reduce The Severity Of Organ Failure?

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**Objective:**
Organ failure is a common complication associated with increased mortality in intensive care units (ICUs) patients. Increased mortality is also associated with hyperglycemia and glycemic variability. This research evaluates the impact of an intensive vs. a conventional insulin therapy on organ failures.

**Method:**
Daily Sequential Organ Failure Assessment (SOFA) score is used to assess organ failure and glycemic control quality is measured by cumulative time in a 4.0-7.0 mmol/L band (cTIB), evaluated daily. Glycemic variability was assessed by a glycemic lability index, defined per day. These metrics are evaluated for 704 patients with sufficient data in the multi-centre Glucontrol study, where patients were randomized to intensive (IIT: BG target: 4.4-6.1 mmol/L) or conventional (CIT: BG target: 7.8-10.0 mmol/L) insulin therapy. SOFA score improvement is measured by the percentage of patients with SOFA≤5 on a given day. Patients in both groups were matched for age, sex, diagnosis and severity of illness (APACHE II score), $p > 0.15$.

**Result:**
BG levels differed between group A and B ($p<0.05$), as expected. Initial and maximum SOFA scores are equivalent ($p>0.3$). IIT and CIT showed no difference ($p>0.1$) in the percent of patients with SOFA≤5 over Days 1-10 and no effective change in value over Days 1-7. Glycemic variability was much higher for group A than group B on all days and statistically significant on days 1-8 ($p<0.05$) and several further days.

**Conclusion:**
IIT was unable to mitigate organ failure in two cohorts randomized to different glycemic targets. IIT provided better but not tighter control, with higher variability and more hypoglycemia than CIT, which may have been a causative factor compared to other studies that were successful in reducing organ failure.